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09/509,433	05/30/2000	ROBIN WALTER MILLS	P-3002.1	9540

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EXAMINER

NEGRON, ISMAEL

ART UNIT PAPER NUMBER

2875

DATE MAILED: 01/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/509,433

Applicant(s)

MILLS ET AL.

Examiner

Ismael Negron

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 October 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19,20 and 30 is/are allowed.
- 6) ☐ Claim(s) 1-18 and 21-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 22 October 2001 is: a) ☐ approved b) ☒ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |                                                                                              |                                                                             |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Amendment*

Applicant's amendment filed on October 22, 2001 has been entered. Claim 20 has been amended. No claims have been added or cancelled. Claims 1-30 are still pending in this application, with claims 1, 19, 27, 29 and 30 being independent.

The corrected or substitute drawings were received on October 22, 2001. These drawings are not acceptable.

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "43" has been used to designate different parts in different embodiments. See Figures 4 and 5. Also note the following:

- Reference number "43" in Figure 6; and
- reference character "61" in Figure 7.

The applicant is once again advised that the reference characters must be properly applied, with no single reference character being used for two different parts or for a given part and a modification of such part. See MPEP §608.01(g).

In Figure 4, reference number "43" is used to designate an LED cluster having at least three LED while in Figure 5, the same reference number is used to designate an LED cluster having at least four LED. While both items are LED clusters, they are different LED clusters, and need to be referenced by different characters. A similar problem is present in Figure 6, where a solid LED cluster and an annular LED cluster

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are referenced by the same reference number ("43"); and Figure 7, where optic fibers of different cross sectional shapes are referenced by the number "61".

Correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belfer (U.S. Pat. 5,878,645).

Belfer discloses an optical irradiation device having:

- **an array of light sources clustered together so that they emit radiation into a beam, Figure 1, reference number 12;**
- **each light source having a modifier formed with multiple facets such that facets of adjacent modifiers adjoin one another in close proximity throughout their length, Figure 2, reference number 14;**
- **the faces of adjacent modifiers extending substantially parallel to one another, Figure 2;**
- **the faces of adjacent modifiers abutting one another, Figure 2;**

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- **the modifiers being arranged in a ring**, Figure 2;
- **the modifiers being arranged in concentric rings**, Figure 2;
- **the modifiers having an hexagonal shape**, Figure 2;
- **the facets of the modifiers being polished**, inherent;
- **the facets having a reflective coating**, column 2, lines 8-21;
- **each light source being provided with a light guide**, columns 1 and 2, lines 66-67 and 1-7, respectively; and
- **the light guides consisting of individual fibbers bundled together**, Figure 2.

Belfer discloses all the limitations of the claims, except the light sources being LED.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an LED as the light source of the device of Belfer since the examiner takes official notice that the advantages of LED over other light sources (i.e. reduced size, high efficiency, low power consumption, long life, resistance to vibrations, low heat production) are old and well known in the illumination art.

3. Claims 16 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belfer (U.S. Pat. 5,875,645) in view of Kennedy (U.S. Pat. 5,420,768).

Belfer discloses an optical irradiation device having:

- **an array of light sources clustered together so that they emit radiation into a beam**, Figure 1, reference number 12; and

- **each light source having a modifier formed with multiple facets such that facets of adjacent modifiers adjoin one another in close proximity throughout their length, Figure 2, reference number 14.**

Belfer discloses, or suggests, all the limitations of the claims, except the light guide having an index that varies from one part to another to manipulate the light.

Kennedy discloses an irradiation device having LED as the light source and a light guide with a varying index to manipulate light emitted by the LED (Figure 2, reference number 17).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combined the teachings of Belfer and Kennedy to obtain a device such as the one disclosed by Kennedy with an enhanced light radiation output, as per the teachings of Belfer (column 1, lines 15-22)

4. Claims 21-27 and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Belfer (U.S. Pat. 5,875,645) in view of Kennedy (U.S. Pat. 5,420,768) as applied to claim 1 above, and further in view of state of the prior art.

The combined teachings of Belfer and Kennedy teach all the limitations of the claims, except a heat management system having heat pipes, a cooling fluid and channels to conduct such cooling fluid.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a heat management system in the apparatus of Belfer

and Kennedy since the examiner takes official notice that such heat management system in combination with optic wave guides are old and well known in the illumination art (see Relevant Prior Art section of this Office Action).

***Allowable Subject Matter***

5. Claims 19, 20 and 30 are allowed.
6. Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office Action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.
7. The following is a statement of reasons for the indication of allowable subject matter:

Applicant teaches an irradiation device having:

- light emitting diodes (LED);
- a tapered light guide to collect radiation emitted by the LED;
- two or more tapered light guides being arranged in series so that successive guides receive radiation from preceding guides;
- an LED or a group of LED being provided at the input end of each guide;
- a tapered light guide having an intermediate region of minimum diameter in which a bend is formed.

No prior art was found disclosing individually nor teaching in combination all of the features of the applicants' invention.

### ***Response to Arguments***

8. Applicant's arguments filed October 22, 2001 have been fully considered but they are not persuasive.

9. Regarding the examiner's rejection of claims 1-15, 17 and 18 under 35 USC 103 (a) as unpatentable over Belfer (U.S. Pat. 5,873,645), the applicant argues that the cited reference fails to disclose, or even suggest in combination, all of the features of the claimed invention. Specifically the applicant refers to LED being used as the source of light, the LED being faceted and packed together, the LED emitting radiation with an increased density per unit area.

In response to applicant's argument that the references fail to show certain features of applicant's invention, the examiner wishes to respectfully remind the applicant that the language of independent claim 1 claims an illumination device having a plurality of faceted LED disposed in close proximity to form a cluster. Belfer, as detailed in both the previous and instant Office Action, includes all the structural limitations of the claimed invention as recited in the claims, except the use of LED as the light source. Such difference was not considered to amount to patentable subject matter since LED, and their advantages over other light source, are extensively known in the illumination art, such advantages including, among others reduced size, high



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efficiency, low power consumption, long life, resistance to vibrations, and low heat production. Modifying the device of Belfer to include LED as the light source was considered an obvious improvement in light of the knowledge available to one of ordinary skill in the art.

Regarding the LED emitting radiation with an increased density per unit area, it is noted that such feature is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Even if it was included in the claims the recitation "the LED emitting radiation with an increased density per unit area" would carry no patentable weight since the meaning of increased density per unit area was not defined in the disclosure.

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negrón whose telephone number is (703) 308-6086. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea, can be reached on (703) 305-4939. The facsimile machine number for the Art Group is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

  
Sandra O'Shea  
Supervisory Patent Examiner  
Technology Center 2800

Inr

January 13, 2002